

# **FALCOM NAVI-1**

## **(Bluetooth GPS Receiver)**

### **User's guide**



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## Version history:

Version number	Author	Change
1.00	Fadil Beqiri	Initial version
1.01	Fadil Beqiri	Chapter 0.2 <b>Package contents</b> updated. The GPS indicator updated
1.02	Fadil Beqiri	Chapter 0.2 <b>Package contents</b> updated (the order name of AC/DC power adapter changed).
1.03	Fadil Beqiri	Indicator <b>LED</b> of internal battery updated. Bluetooth connection updated ( <b>pairing</b> added) In the Chapter <b>5.3</b> , item 7 updated

## **Cautions**

Information furnished herein by FALCOM are accurate and reliable. However, no responsibility is assumed for its use.

Please, read carefully the safety precautions.

If you have any technical questions regarding this document or the product described in it, please contact your vendor.

General information about FALCOM and its range of products are available at the following internet address: <http://www.falcom.de/>

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No patent liability is assumed with respect to the use of the information contained herein.

## 0 Introduction

### 0.1 General about NAVI-1

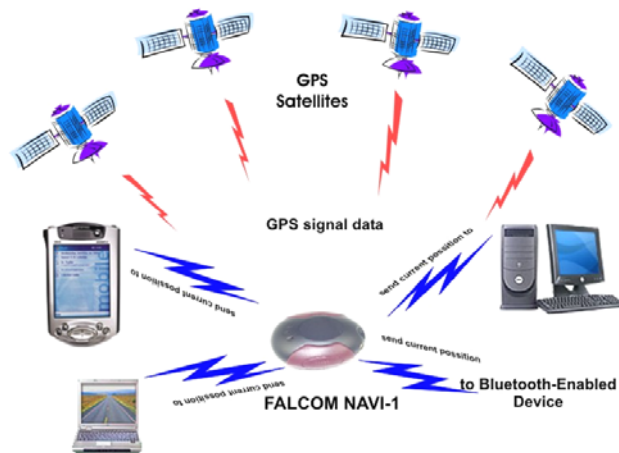
Dear customer, we are pleased that you have decided to purchase an intelligent navigation device such the Falcom NAVI-1 as. In order quickly to start and immediately and comprehensive to use all functions of Falcom NAVI-1 on your utilization, we recommend you to take yourself a few minutes time to read the following references and suggestion for using your new navigation device.

The NAVI-1 is a new GPS receiver, integrated with Bluetooth technology. With its ultra-low power consumption, it is an outstanding quality and performance as well an excellent navigational and positioning aid tool when used with a GPS Mapping software installed on Bluetooth-enabled devices, such as PC, laptop, or Pocked PC.

The FALCOM NAVI-1 has an integrated temperature compensated crystal oscillators (TCXO). Due to the higher stability of frequency it offers a high improved performance. Additionally, the integrated TCXO accept the condition for use the SiRFXTrac firmware. The FALCOM NAVI-1 use SiRFXTrac firmware which make it possible to track the GPS signals at far lower signal levels than is currently possible with competitive autonomous GPS solutions. Therefore, you have a high-capacity navigation system, which connects your Bluetooth-enabled device with the performance of an intelligent and dynamic destination guidance. The embedded Class 2 Bluetooth transceiver, is capable of communicating with any Serial Port Profile Bluetooth device, within a 10m radius. The FALCOM NAVI-1 in communication with your installed GPS Mapping software on the Bluetooth-enabled device points you the way comfortably and reliably from the current location A to your desired destination B. In this way you also stay for longer distances always on the optimal course and arrive your destination point comfortable and ease. Although your receiver is fully compatible with any GPS Mapping software running on different hardware platforms. The embedded high-sensitivity internal GPS and Bluetooth antenna allow you to navigate freely without the hassle of messy wire connections.

The FALCOM NAVI-1 is an equipment that can be used in a variety of applications including:

- ◆ Navigation and positioning
- ◆ Finding streets and routes
- ◆ Travel planning
- ◆ Safety and security
- ◆ Fleet tracking and management and many others ... .



## 0.2 Package contents

Check the contents of the package. The following items should be included. If there is any item damaged or missing, please contact your dealer immediately.



Description	Quantity
FALCOM NAVI-1	1
FAL 700mA/3.7V (Removable battery)	1

Table and figure below shows the accessories for FALCOM NAVI-1 which are available by Falcom upon request.



Order name	Description
FAL-ANT-3-MCX	External active antenna with MCX plug connector
FAL 700/3.7	Lithium ion removable battery
PS-003	+5 V DC, Power Supply Adapter (power charger)
KA-NAVI-1-PS	+5 V DC, car adapter cable (power charger)

## 1 Security

This chapter contains important information for the safe and reliable use of the NAVI-1. Please read this chapter carefully before starting to use the NAVI-1.

### 1.1 General information

The Global Positioning System uses satellite navigation, an entirely new concept in navigation. GPS has become established in many areas, for example, in civil aviation or deep-sea shipping. It is making deep inroads in vehicle manufacturing and before long everyone of us will use it this way or another.

The GPS system is operated by the government of the United States of America, which also has sole responsibility for the accuracy and maintenance of the system. The system is constantly being improved and may entail modifications effecting the accuracy and performance of the GPS equipment.

### 1.2 Restricted use

Certain restrictions on the use of the NAVI-1 may have to be observed on board a plane, in hospitals, public places or government institutions, laboratories etc. Follow these instructions.

### 1.3 Children

Do not allow children to play with the NAVI-1. It is not a toy and children could hurt themselves or others. The NAVI-1 consists of many small parts which can come loose and could be swallowed by small children. Thoughtless handling can damage the NAVI-1.

### 1.4 Driving and safety

Do not place (mount) the device and the external antenna (if it is connected) on the parts which will obstruct the sight of the driver.

Do not place (mount) the device and the external antenna (if it is connected) on the parts which block any safety device (such as the Airbag, pedals, accessory controls and any others) in your vehicle.

Your own personal judgment has always priority while you driving, if the user of FALCOM NAVI-1 feels that the instructions of navigation software place you in an unsafe area, then use your personal judgment according to traffic regulations and do not follow those instructions.

The NAVI-1 is designed to be installed inside the vehicle. Do not place or install the NAVI-1 on the vehicle roof (outdoor).

Please do not handle the NAVI-1 while driving.

Safety to traffic has always priority! Please use the FALCOM NAVI-1 only in such a way that you always keep control of your vehicle in all traffic conditions, especially when the vehicle is moving.



## 1.5 General care and maintenance

In order to ensure the best performance of your FALCOM NAVI-1, please remind the following helpful tips:

- ◆ Keep your FALCOM NAVI-1 dry. Do not expose to rain, water, or high humidity environments.
- ◆ Do not expose your FALCOM NAVI-1 to temperatures higher than 60°C.
- ◆ Do not leave your FALCOM NAVI-1 in your car under direct sunlight while not in use.
- ◆ Do not store the FALCOM NAVI-1 in cold temperatures.

## 2 Preparing to use your FALCOM NAVI-1

Read this manual in order to begin using your FALCOM NAVI-1 and to understand its operations, functions, and common features.

You must first install a GPS Mapping software (if none is installed) on your PC, laptop, PDA, or other handheld devices.

In order to have a Bluetooth connection with your Falcom NAVI-1, secure that the control device is a Bluetooth-enabled one.

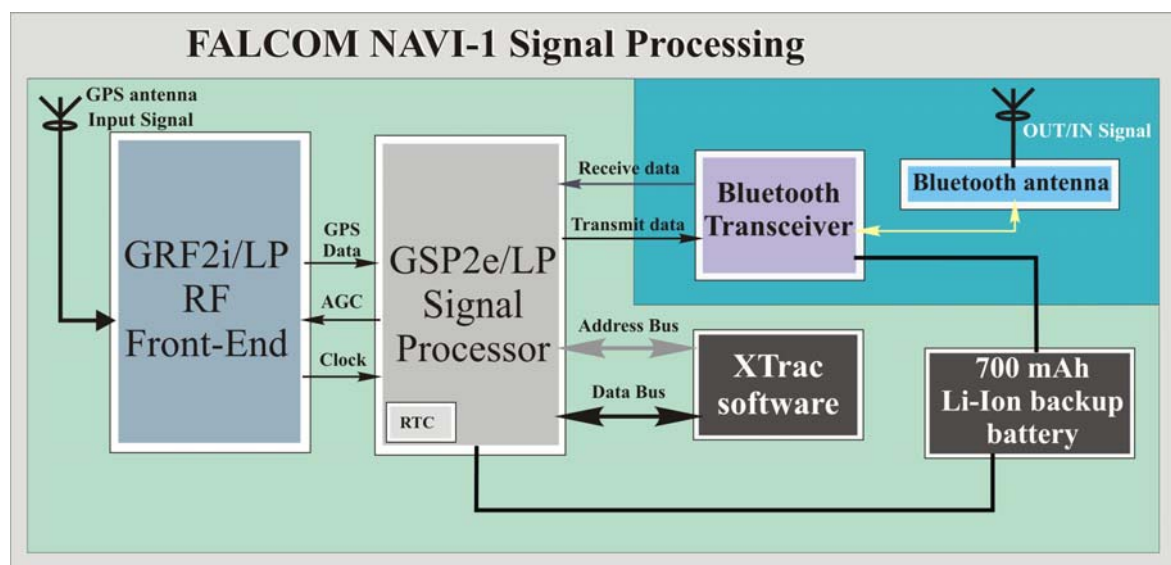
For more information about software installation, please refer to chapters described below.

### 2.1 How does the FALCOM NAVI-1 works?

The FALCOM NAVI-1 using SiRFXTrac software offers high position accuracy and fast Time-To-First-Fix (TTFF) than is currently possible with other autonomous GPS solution. This means that the NAVI-1 will continue to determinate its positions or obtain an initial fix in places previously not possible. In other word the NAVI-1 can be used in environments previously deemed inaccessible environments such as:

- ✓ severe urban canyons,
- ✓ parking garages,
- ✓ dense foliage,
- ✓ multi-level freeways,
- ✓ under bridges and overpasses, and, in many cases, indoors.
- ✓ Coverage - Single Story Office Block

When the GPS receiver is initially turned on, it begins to determinate its current positions, velocity and time which will be calculated from tracking the GPS signals an extremely small level by 16 dBHz. While trying to calculate a position fix, the receiver needs to be locked-on to at least four satellites. In order to calculate quickly its current location, the receiver uses the current received signals from in view satellites, simultaneously holds the stored data from its memory (SRAM).



When the required data are completely collected, then satellite signals are tracked continuously and the position is calculated from time to time. When the received data from satellites is considered valid then the FALCOM NAVI-1 is available for navigation. The validity of these data stored in SRAM is kept due to RTC keeps running from external battery and these data may still be valid from the previous operation.

As above the initial state of the NAVI-1 GPS receiver refers to the last status of the receiver in memory (SRAM). This primarily determines the length of time it will take for your FALCOM NAVI-1 to obtain a GPS fix.

Your position can be extremely quick fixed within 4 seconds from a "hot-start" state, and within 45 seconds from a "cold-start" state. The FALCOM NAVI-1 stores data about where the satellites are located at any given time. The data is called almanac. Occasionally, when the FALCOM NAVI-1 has been turned off for a long time, the almanac may get out-dated or "cold" so the NAVI-1 performs a cold start. Otherwise, if the time and position are knowledge, as well the almanac data are also valid then the FALCOM NAVI-1 performs a Hot start.

The NAVI-1 uses the satellite signals to calculate its exact current location by calculating its distance from the satellites. The position data within the receiver is then converted into latitude and longitude coordinates which are usually provided in the geodetic datum on which the GPS is based (WGS84) and transmits via integrated Bluetooth transceiver direct to the Bluetooth-enabled device (PC, laptop or Pocked PC).

### 3 Software interface

The NAVI-1 evaluation receiver is capable of outputting data in the NMEA-0183 format as defined by the National Marine Electronics Association (NMEA), Standard for Interfacing Marine Electronic Devices, Version 2.20, January 1, 1997.

#### 3.1 NMEA output messages

The table below shows all NMEA output messages supported by NAVI-1 as well as a brief description of each output message.

For more detailed information about the output message list, please refer to the SiRFstarII message set specification available in section “service/downloads/manuals” on Falcom’s Website: [www.falcom.de](http://www.falcom.de).

Option	Description
GGA	Time, position and fix type data.
GLL	Latitude, longitude, UTC time of position fix and status.
GSA	GPS receiver operating mode, satellites used in the position solution and DOP values.
GSV	The number of GPS satellites in view satellite ID numbers, elevation, azimuth and SNR values.
RMC	Time, date, position, course and speed data.
VTG	Course and speed information relative to the ground.

Table 1: NMEA Output Messages

## 4 Technical Description

### 4.1 Bluetooth GPS Receiver architecture

The NAVI-1 OEM GPS receiver from FALCOM is a new OEM GPS receiver product that features the SiRFstarII-Low Power chipset. This complete 12 channel, WAAS-enabled GPS receiver provides a vastly superior position accuracy performance in a much smaller package. The SiRFstarII architecture builds on the high-performance SiRFstarI core, adding an acquisition accelerator, differential GPS processor, multipath mitigation hardware and satellite-tracking engine. The NAVI-1 delivers major advancements in GPS performance, accuracy, integration, computing power and flexibility. The delivered data from GPS receiver will sent via Bluetooth antenna to the control device (connected Bluetooth device).

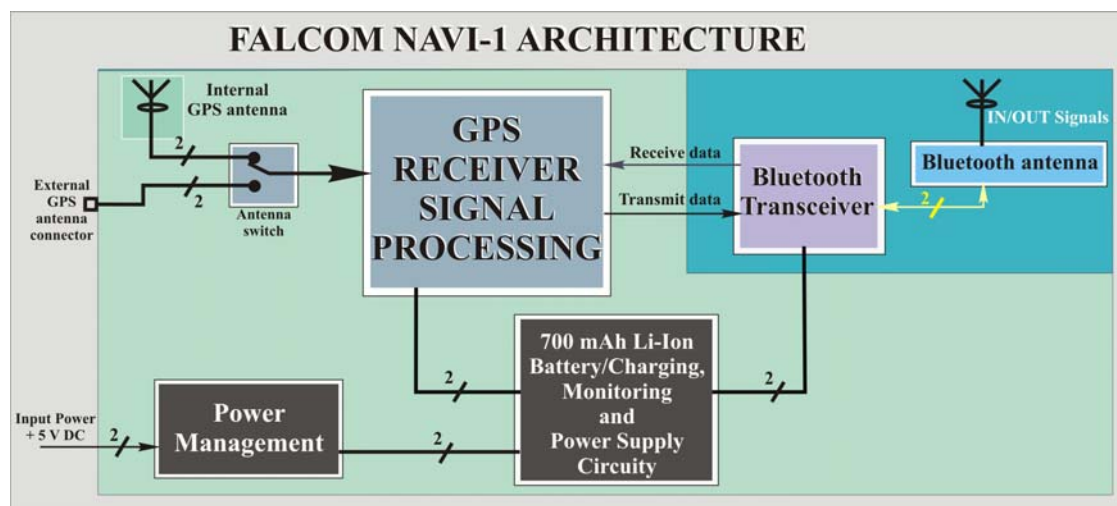


Figure 1: The architecture of NAVI-1 Bluetooth GPS receiver

### 4.2 Technical specifications

#### 4.2.1 Electrical Characteristics

##### 4.2.1.1 General

Frequency	L1, 1575.42 MHz
C/A code	1.023 MHz chip rate
Channels	12

##### 4.2.1.2 Accuracy

Position	10 meters CEP without SA
Velocity	0.1 meters/second, without SA
Time	1 microsecond synchronized to GPS time

**4.2.1.3 DGPS Accuracy**

Position	1 to 5 meters, typical
Velocity	0.05 meters/second, typical

**4.2.1.4 Datum**

WGS-84

**4.2.1.5 Time to First Position**

Hot start	< 4 sec., average
Warm start	< 35 sec., average
Cold start	< 45 sec., average

**4.2.1.6 Sensitivity \***

Tracking	16 dBHz
Hot Start	23 dBHz
Warm Start	28 dBHz
Cold Start	32 dBHz

\* The sensitivity value is specified at the correlator. On a NAVI-1 Evaluation Receiver using SiRFXTTrac firmware with the supplied antenna, 32 dBHz is equivalent to -142 dBm or -172 dBW.

**4.2.1.7 Dynamic Conditions**

Altitude	18,000 meters (60,000 feet) max.
Velocity	< 515 meters/second (1000 knots) max.
Acceleration	4 g, max.
Jerk	20 meters/second <sup>3</sup> , max.

**4.2.1.8 DC Power**

Power	Built-in rechargeable lithium ion battery with +5V DC input charging circuit (700 mA).
Operating time	Default: 5-6 hours minimum after full charge, in continuous mode.

**4.2.1.9 Bluetooth Serial Port**

Connection :	Communicate with Host Platform via Bluetooth(Class 2) Serial Port Profile.
Protocol messages:	SiRF binary – position, velocity, altitude, status and control. NMEA, Msg.: GGA, GLL, GSA, GSV, RMC and VTG
Serial port settings:	Baud Rate: up to 115200 bps Data bits: 8 Parity: NO Stop bit: 1 Flow control: NO

**4.2.2 Physical**

- ◆ dimensions: 85 mm x 59 mm x 25 mm (L x B x H)
- ◆ weight: 70 gr.

**4.2.3 Technical data**

- ◆ Bluetooth range: 10 m
- ◆ Battery: Lithium-Ion 700 mAh/3.7V

Temperature limits		
Operation	Charging temperature: 0 ~ +45	°C
	Discharging temperature: 0 ~ +60	
Transportation	-20 to +70	°C
Storage	1 month (– 20 ~ +60)	°C
	3 month (– 20 ~ +45)	
	1 year (– 20 ~ +25)	

**Table 4:** Temperature range**4.2.3.1 TCXO-Specification**

Typical phase noise density	1 Hz offset	-57.0 dBc/Hz
Typical phase noise density	10 Hz offset	-88.0 dBc/Hz
Typical phase noise density	100 Hz offset	-112.0 dBc/Hz
Typical phase noise density	1 kHz offset	-130.0 dBc/Hz
Typical phase noise density	10 kHz offset	-140.0 dBc/Hz
Load sensitivity	± 10% load change	0.2 ± ppm
Long term stability	Frequency drift over 1 year	0.5 to 2.0 ± ppm

### 4.3 Interfaces



#### 4.3.1 On/Off button

To turn on the NAVI-1, press the On/Off button for circa two seconds. In order to turn it off again, press the On/Off button for approx. 2 seconds. Thereby, a short acoustic signal (peep) will be generated each time.

#### 4.3.2 LED's

Following status indicators are integrated on the top side of NAVI-1:

Indicators	Description
Yellow (labelled GPS)	indicates the state of GPS part
Red/Green (labelled BAT)	indicates the state of internal battery
Blue (labelled BT)	indicates the state of Bluetooth part

#### 4.3.3 Power jack

In order to recharge the internal battery the Ø 3,5 mm power jack allows you to connect either a car adapter cable (KA-NAVI-1-PS) or a power charger (PS-003) to an DC electrical outlet. Both accessories are available upon request (refer to chapter 0.2).

#### 4.3.4 Interface for an external antenna

There is no active antenna included in the delivery packing, so the users have to purchase one. For more information please contact our sale department.

The order name is: **FAL-ANT-3-MCX**.

The NAVI-1 provides a MCX-connector for an external active antenna. An external antenna can be used instead of the NAVI-1's internal antenna. The operation of internal GPS antenna will be deactivated if this one is externally connected.



## 5 Operation Guide

Before using the NAVI-1, make sure to prepare the following items:

- ◆ A GPS software is properly installed on your Bluetooth-enabled device (PC, laptop, Pocked PC, or other handheld devices).
- ◆ The Bluetooth GPS Receiver is fully powered (i.e. internal battery is full charged) and operational.
- ◆ Check that the Bluetooth GPS Receiver is ON.

This section will outline the necessary procedures for the Bluetooth GPS receiver to run smoothly with the GPS Mapping software.

### 5.1 Installation instructions

In the delivery packing the FAL 700/3.7 battery for NAVI-1 is separately, just take it out from its package, open the cover cap on the underside of the NAVI-1 and insert the FAL 700/3.7 in it. The four contact pads of the NAVI-1 and battery has to be in the same direction and opposite to each-other, finally close the cover cap. In order to recharge it the aforementioned adapters have to be used. Place your Falcom NAVI-1 in a location (e.g. vehicle's dashboard) and turn it on by pressing for approx. two seconds the On/Off button. In order to turn it off again, press for approx. 2 seconds the same button. Thereby, a short acoustic signal (peep) will each time be generated.

The position of the NAVI-1 mounting is crucial for its optimal performance. Place the NAVI-1 in a way that the receiving side of the internal GPS antenna which is placed on the top of NAVI-1 to have direct view to the sky. The Bluetooth connection between the Falcom NAVI-1 receiver and your mobile phone/PDA/PC or laptop has to be established. The following information will be indicated via 3 corresponded LED's on the top side of NAVI-1.

#### 1. Left LED (blue):

- Blinking, the equipment is ready for a Bluetooth connection.
- Continually light, the connection between devices is created and ready for use.

#### 2. Middle LED (red/green):

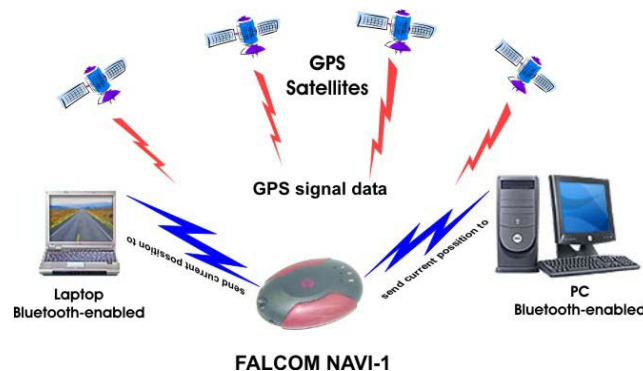
- Continually red, the equipment is switched on and the internal battery is fully charged.
- Blinking red, the internal battery is under 3.5 V, you have to recharge it.
- Continually green, the internal battery is in charging phase and the equipment is switched off.
- Green off (connected to power charger), the internal battery now is completely charged.

#### 3. Right LED (yellow):

- Blinking, the GPS-Mouse search for satellites
- Continually light, the valid GPS data are being received.

Please refer to the corresponding chapter as far as the Bluetooth connection is concerned.

## 5.2 PC/Laptop and NAVI-1 Bluetooth Connection

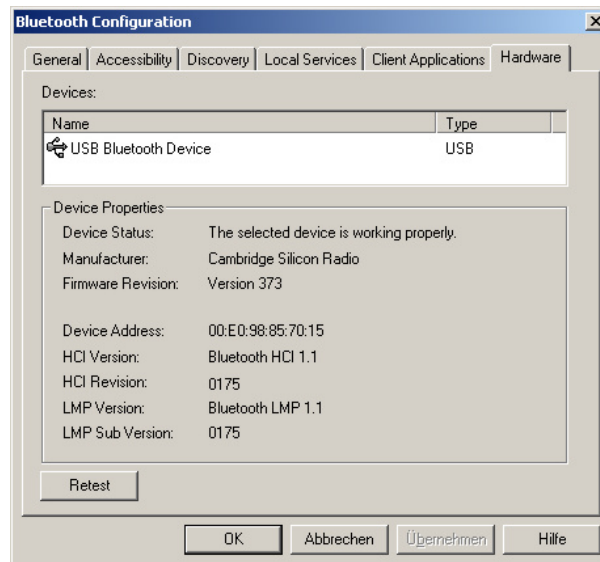


To set up a connection between PC (in this case running Windows 2000, WIDCOM Bluetooth software Rev. 1.4.1 as well as a Typhoon Bluetooth USB adapter) and the NAVI-1, please follow step by step the instructions below.

1. If the Bluetooth software is not installed in your control device yet, please install it, plug your Bluetooth USB adapter into one of the USB free COM port before the user begin the next steps.
2. If your NAVI-1 is turned off, please turn it on. Once the Bluetooth receiver is turned on, the internal LED will appears as shown:
  - ♦ Blue Flashing every one second (the Bluetooth is on, and ready for connection).
3. Activate Bluetooth on your PC. Open the Bluetooth install directory and double-click to its icon. If the Bluetooth icon on the bottom right-hand corner of the PC screen is blue-red, you will need activate Bluetooth. Click on the icon, and a pop-up menu will appears in the display. Select **Enable Bluetooth Radio**. The colour of the Bluetooth icon will change from blue-red to blue-white, signifying that it is turned on. As shown in figures below:



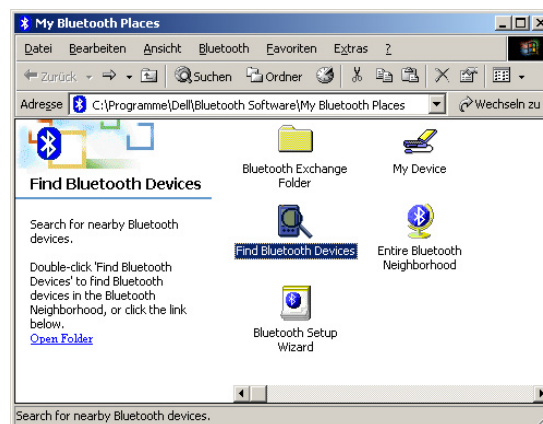
4. Click **Start** button, point to **Settings**, **Control Panel** and click the **Bluetooth configuration**, a screen will appears in the display. Select the **Hardware** page and check if your USB Bluetooth device is found and it work properly, as shown below.



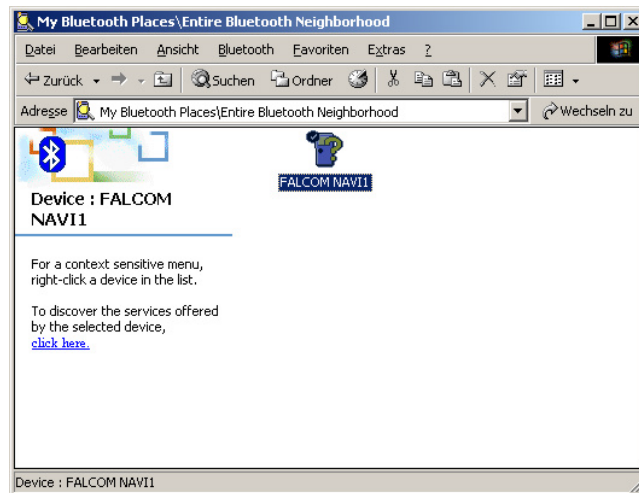
5. Close appeared screen. Search for the **FALCOM NAVI-1**. Right mouse click the Bluetooth icon on the bottom right-hand corner of the PC screen. On the next pop-up that appears, select **Explore My Bluetooth Places** item.



Double-click on the marked icon to find the Bluetooth devices in the Bluetooth neighbourhood.



6. After a few seconds, a list of Bluetooth devices will appear on your screen. You will see the **FALCOM NAVI-1** appear in the Service Selection. Select the **FALCOM NAVI-1** icon. In order to discover the services offered the FALCOM NAVI-1 click the link '[click here](#)' on the left side of opened window.



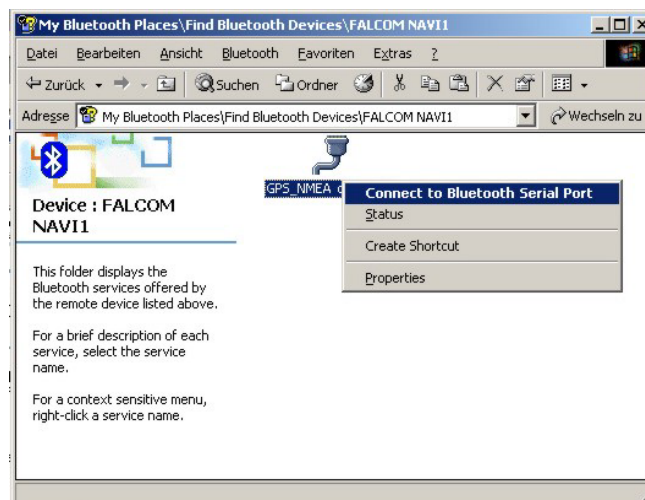
7. The service appeared below allows the users to establish a virtual serial port. Right-click on the ... **FALCOM NAVI-1** icon, on the appeared popup menu click the **Connect to Bluetooth Serial Port** item. The LED blue light constantly (means Bluetooth connection is created).

**Secure Connection:**

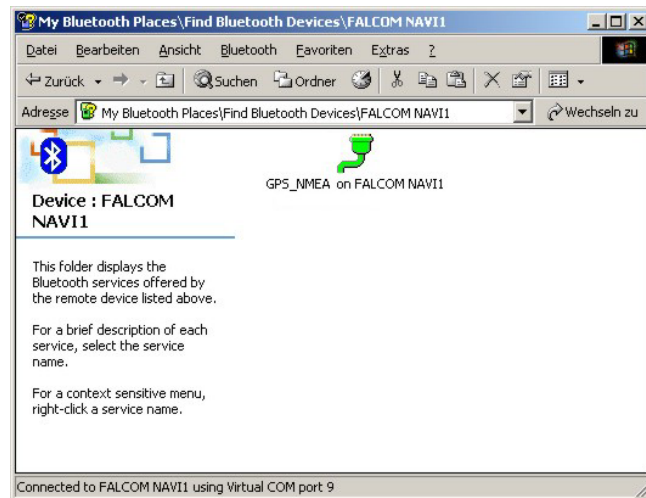
As far as the Secure Connection for NAVI-1 is concerned there is no security entered i.e. there is no device pairing required if the Secure Connection option is disabled for a Bluetooth service or application. Please check the software configuration to disable the Secure Connection (e.g. go to **Start>Settings>Control Panel** and click the **Bluetooth configuration**, a Bluetooth configuration screen will appears in the display. Select the **Client Application** tab, then double-click on the Application Name “**Bluetooth Serial Port**” and deactivate its Security Connection on the next appeared dialog box).

In order to pair two devices with each-other the Secure Connection option has to be enabled for a Bluetooth service or application (e.g. go to aforementioned directory and activate its Security Connection). After inquiry process, the pairing process needs a valid PIN which for NAVI-1 is “1111” pre-defined.

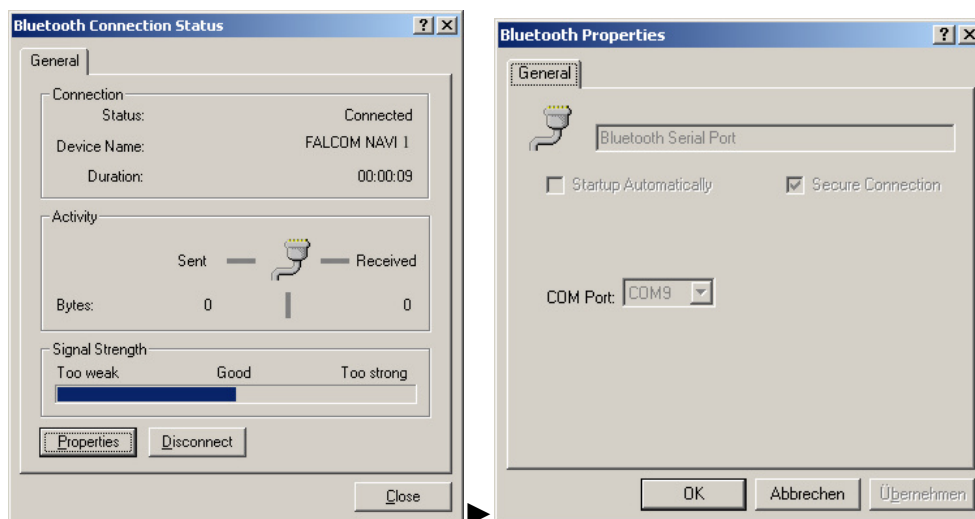
For more details about Bluetooth, please refer to the software manual that you are currently using)



8. The aforementioned icon will change its colour from grey to green as shows in the figure below. The service which the NAVI-1 offers is also shown below.



9. Once connected, if you right-click the icon, on the next pop-up that appears select the **Status** item. The user will see the connection status for the device. Signal strength is at the bottom of the screen. Try experimenting with your Bluetooth GPS receiver to see how far it needs to be before the blue bar reaches. If the user right-click the icon again and select the **Properties** item the an available COM Port is selected.



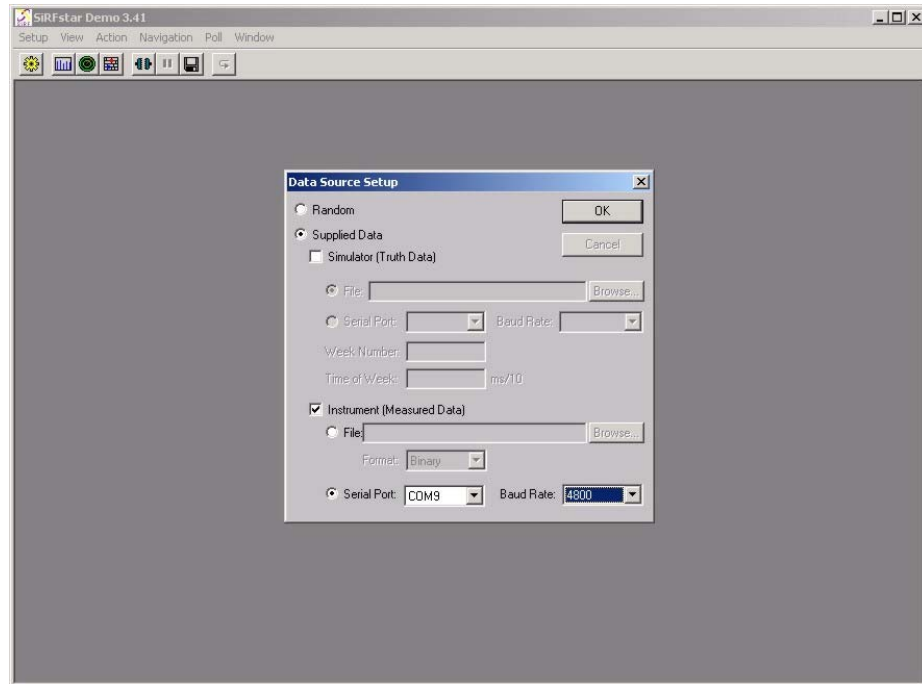
### 5.2.1 How to evaluate the NAVI-1 connected to PC/Laptop

After the Bluetooth connection is established, please download the SiRFDemo software which is free available on Falcom's Website:

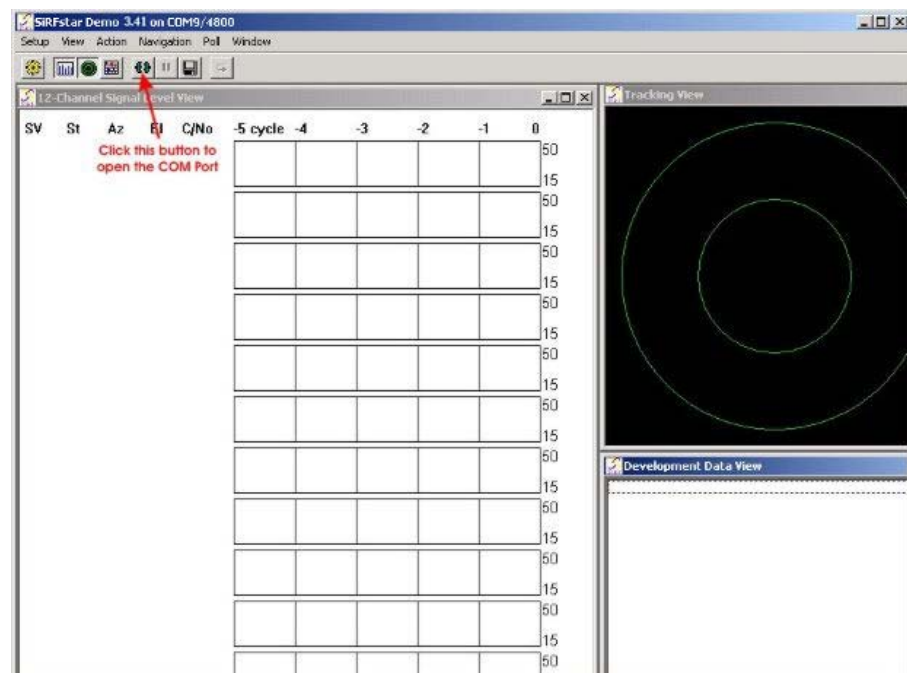
➔ [www.falcom.de/service/downloads/manual/SiRF/SiRFDemo.zip](http://www.falcom.de/service/downloads/manual/SiRF/SiRFDemo.zip)

1. Run the SiRFDemo software by double clicking the **SiRFDemo.exe** file. The SiRFDemo program will be automatically installed onto your computer.
2. To start the SiRFDemo software, either double-click on the **SiRFDemo.exe** installed file or if you have created a shortcut on your desktop, double-click the **SiRFDemo.exe**.

3. The SiRFdemo software will be appeared as follow:
  - ✓ Before running the software, make sure that your PC is recognizing the NAVI-1 properly.
  - ✓ On the activated **Data Source Setup** window, select the COM (e.g. COM9) for SiRFdemo program and set the baud rate e.g. to 4800 bps. See figure below:

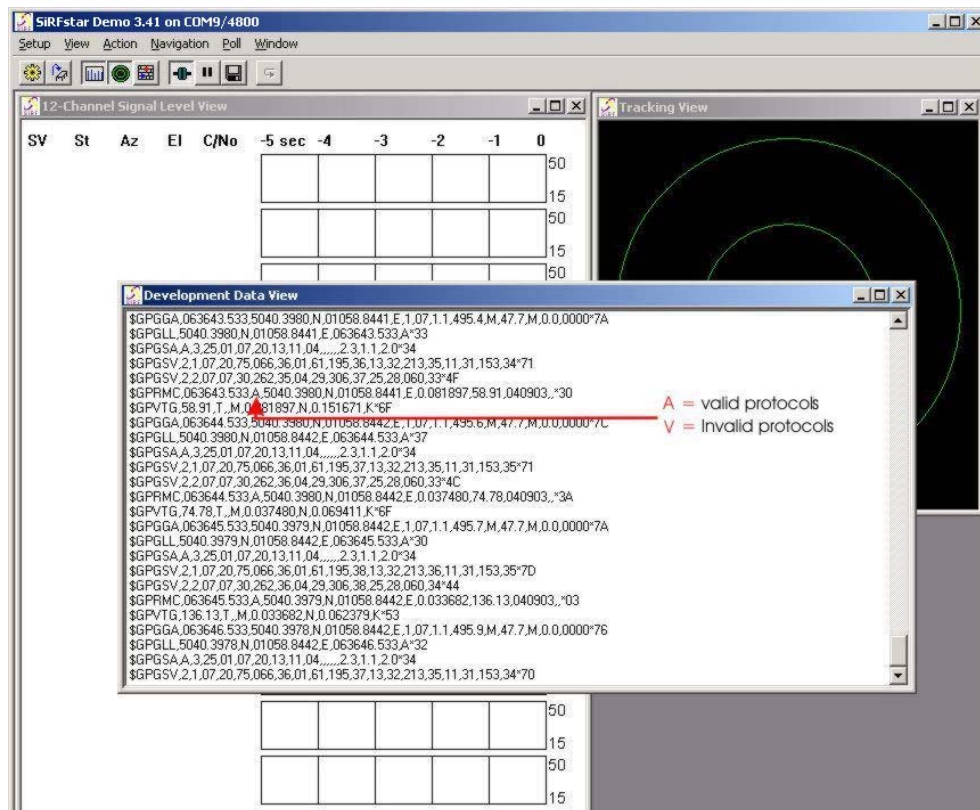


- ✓ Click the icon on toolbar by the up-down button (marked button in figure below) the program will automatically detect the selected COM port and starts evaluating.

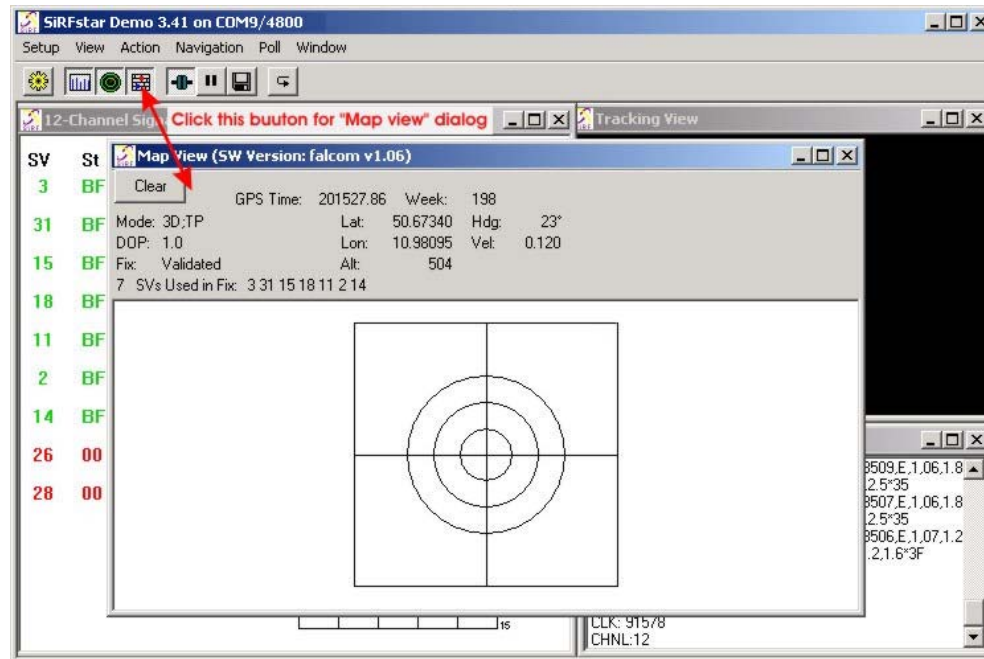




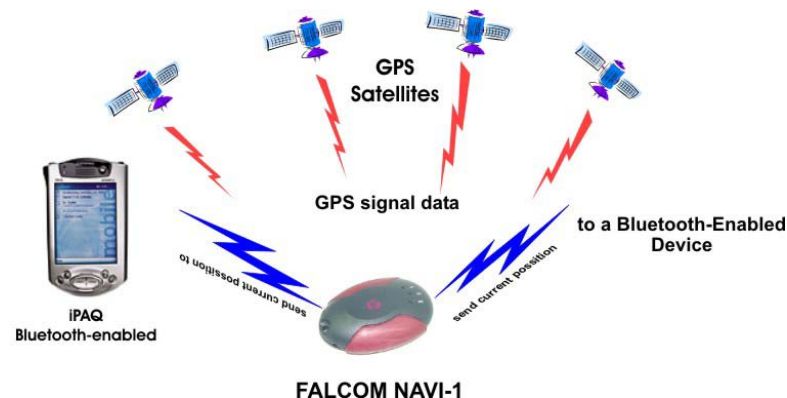
- ✓ The output messages can be viewed in the **Development Data** screen. For a description of NMEA messages please download from Falcom's Website the "[SiRFmessages.pdf](#)" file. The valid/invalid protocols can be recognized on the \$GPRMC protocol as shown in figure below. The capital letter **A** means, incoming protocols are valid and the capital letter **V** means, incoming protocols are invalid.



- ✓ If the NAVI-1 is receiving valid GPS positions, click the icon on toolbar by the up-down button (see marked button in figure below), the user can see the updated data of longitude, latitude, altitude, date time etc. For more detailed information about the using of SiRFdemo software, please download the [SiRFdemo.pdf](#) manual, which is also available on our web page.



### 5.3 Pocked PCs Bluetooth Connection



In order to set up a connection between your Pocket PCs and the NAVI-1, please follow step by step the instructions below.

**HINT:** Perform a Bluetooth device discovery on your Pocked PCs to find the Bluetooth GPS Receiver. Refer to the user documentation for your Bluetooth device for instructions, too.

1. If the Bluetooth software is not installed in your Pocked PCs yet, please install it before the user begin the next steps.
2. If the internal battery is not full charged, connect your NAVI-1 to the aforementioned power supply via aforementioned adapters. When the charge procedure has been completed (refer to the battery indicator and



its description) then turn the NAVI-1 on by pressing approx. 2 sec. the On/Off button. Once the Bluetooth receiver is switched on, the LED's will appears as shown:

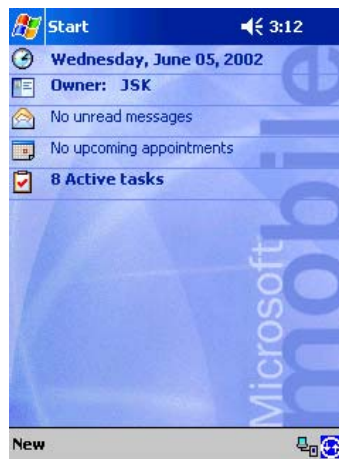
- ◆ The GPS indicator blinking every one second (i.e. the GPS receiver is searching for satellites), no GPS fix is obtained.

***Note:** For best results, you should also perform a GPS fix now. The GPS indicator will light steadily when a GPS fix is performed.*

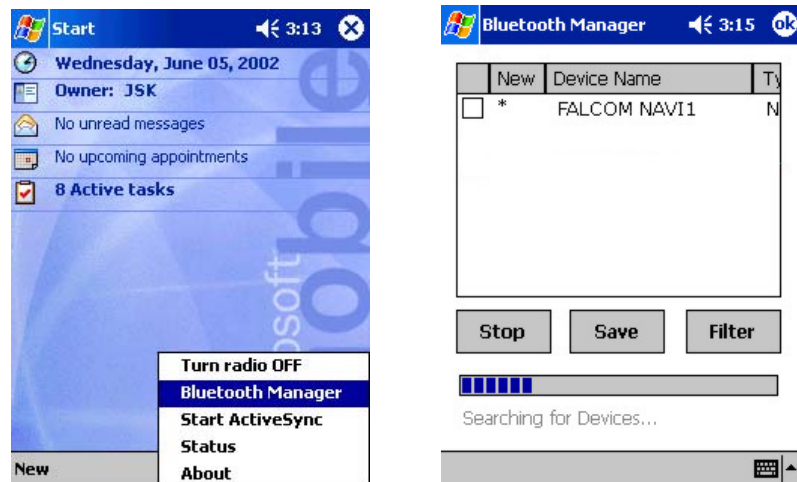
*If there are trouble during acquire a GPS fix, replace the location of NAVI-1 or switch it off and on again.*

- ◆ The battery indicator permanently green ( i.e. battery full charged)
- ◆ The Bluetooth indicator flashing every one second (the Bluetooth is on, and ready for establish a Bluetooth connection)

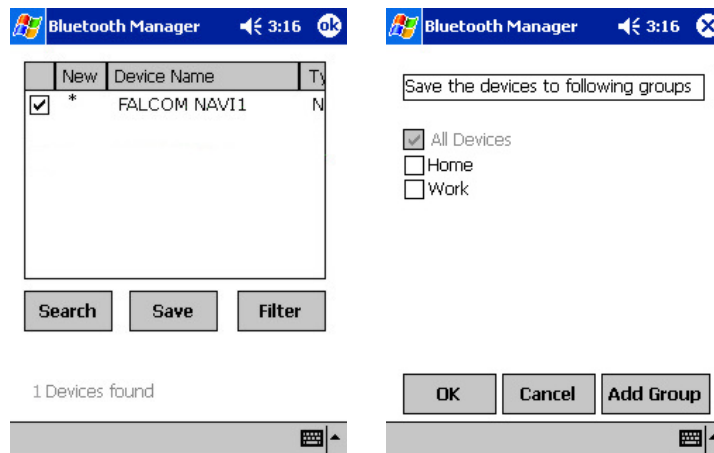
- First, we must turn on the enabled Bluetooth device (in our example iPAQ 38xx Bluetooth device). Check the Blue Manager's icon on the right-bottom screen. If the icon is gray i.e. the Bluetooth is turned off. In order to turn the Bluetooth on, tab on the Bluetooth icon on right-down corner of your Pocked PCs device display, a pop-up menu will appears. Select **Enable Bluetooth Ratio**. The colour of the Bluetooth icon will change from gray to blue-white (it depend on the installed Bluetooth software), signifying that it is turned on.



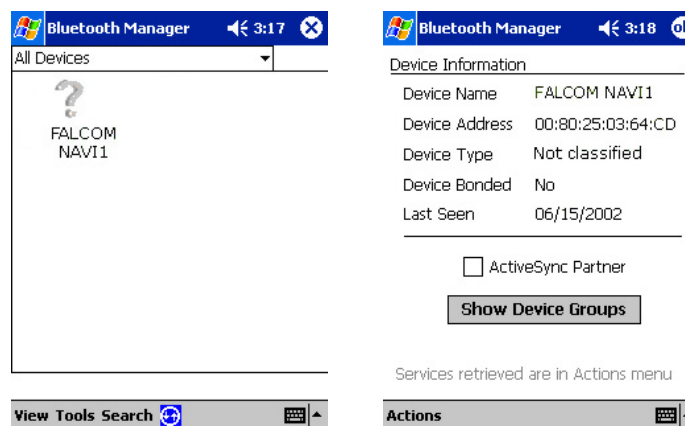
- Search for the **FALCOM NAVI-1**. Open the Bluetooth popup menu on the right-bottom screen. Tab on the **Bluetooth Manager**.



12. If you have not search for devices since last search, tap Search menu at bottom (below right). After search is complete, a list of found Bluetooth devices will appear on your screen. Check the **FALCOM NAVI-1** found (below left) and tap **Save**. Then tab **OK** on the following (below right) screen.



13. You will be returned to the **Bluetooth Manager** screen. Tab the **FALCOM NAVI-1** icon to get the device information.



14. Tap on **Actions** menu and "Connect to GPS\_NMEA .." (below left). This will take a short time to complete (below right). Now tap OK to return to Devices list.

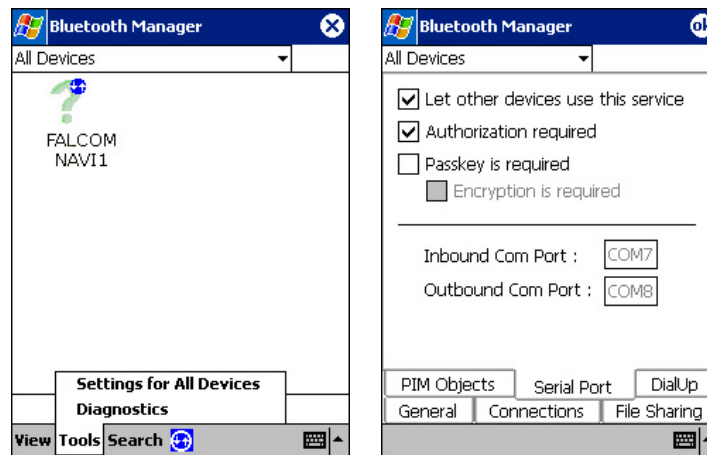


15. Your last step is to find which serial port is connected to. At the main Bluetooth Manager screen, tap Tools Menu and "Settings for All Devices" (below left).

At the Settings screen, tap "Serial Port" tab. Note the entry for "Outbound Com Port" (COM8 in screenshot below right) and "Inbound Com Port" (COM7 in screenshot below right).

As far as the Secure Connection for NAVI-1 is concerned please refer to the chapter 5.2 ([click here](#)). If the option "Passkey is required" is selected, see figure right below, then enter "1111" when asked for a passkey for the device.

For more details about Bluetooth, please refer to the software manual that you are currently using)



When the FALCOM NAVI-1 Bluetooth GPS receiver is connected to handheld device, the Bluetooth indicator on the NAVI-1 Bluetooth GPS receiver will be steadily on.

### 5.3.1 Using the Bluetooth GPS Receiver

As soon as you have installed and configured the Falcom NAVI-1 on your mobile equipment (Pocked PCs), the inserting of navigation is anymore in the way. You have just to run the installed GPS Mapping software. The Bluetooth connection for the installed GPS Mapping software must be set to the correct COM port (please refer to the user documentation for the installed GPS Mapping software for instructions). Determine which COM port number your Bluetooth device uses for serial COM port connections (in our example is COM 7). The FALCOM NAVI-1 communicate to a Bluetooth serial port with following settings: **up to 115200 bps, 8 Data Bits, NONE parity, 1 Stop Bit**. Depending on the device you are using for Bluetooth connectivity, you may or may not need to modify the COM port setting. If necessary, refer to the user documentation for your Bluetooth device. In order to navigate to your destination please refer to the user documentation of installed GPS Mapping software for instructions. There you will find exactly explained the methods for setting the destination and following the navigation instructions to travel to your destination.

We wish you much fun and have a good trip with your FALCOM NAVI-1.

#### **!! Please remember that:**

Safety to traffic has always priority! Please use the FALCOM NAVI-1 only in such a way that you always keep control of your vehicle in all traffic conditions.

## 6 Troubleshooting

**Q: The installed software does not seem to establish any connections with NAVI-1. How do I make it work?**

A: You will need to make sure your Pocked PC has found the "FALCOM NAVI-1" Bluetooth device. Follow the instructions in the Connection section to make sure that your Pocked PC is recognizing the Bluetooth GPS receiver properly. If so, you will need to connect with the device by going to the Bluetooth Manager and tab on the on **Actions** button and then "Connect to GPS\_NMEA ..".

**Q: I have establish a bluetooth connection but the NAVI-1 does not seem to have any GPS fix, what should I do?**

A: Shutdown the FALCOM NAVI-1 and turn it on again. Replace the location of NAVI-1 (maybe poor signals are received), but in accordance with the capability of Bluetooth communication.

**Q: The FALCOM NAVI-1 seems to have a GPS fix (GPS indicator is steadily light), but unable to establish a connection between the NAVI-1 and my Pocked PC. How can I perform a connection?**

A: Go to the Bluetooth Manager → All devices on your Pocked PC. Tap **Actions** menu and then "**Remove this Device**".

Next, shutdown your FALCOM NAVI-1 by pressing the On/Off button approx. 2 second. Then perform a soft reset on your Pocked PC.

Once your Pocked PC has finished resetting itself, go back to the Bluetooth Manager screen and perform the typical setup and connection procedures for your Bluetooth receiver (for help with connection, please review the Connection section).

Finally, run the installed GPS Mapping software, select the assigned COM Port from Bluetooth connectivity, set the baud rate up to 115200 bps (you may or may not need to modify the COM port setting, it depend on your using Bluetooth device), and click Open Port. The current position will appears on the GPS Mapping software.

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